AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) In a printshop having resources for performing various tasks to process print jobs, a method for optimizing the performance of the printshop, the method comprising the steps of:

partitioning the printshop into virtual autonomous cells, representing physical autonomous cells capable of receiving and processing print jobs;

dividing the resources of the printshop between the virtual autonomous cells, wherein each virtual autonomous cell contains representations of sufficient resources to complete at least one class of print job, and wherein the virtual autonomous cells each contain a combination of resources, at least two of the resources of the combination of resources being necessary to complete the at least one class of print job; ~~and~~

assigning each print job to a selected one of the virtual autonomous cells ~~wherein~~ when the selected one of the virtual autonomous ~~cell~~ cells contains representations of a combination of resources capable of independently completing the print job; and

mapping the print job onto a new mapping of the existing virtual autonomous cells when no existing virtual autonomous cell contains representations of a combination of resources capable of independently completing the print job.

2. (Previously presented) The method of claim 1 wherein the resources include equipment for performing printing tasks and the resources include at least one of printers, copiers, rollers, shrink wrappers, cutters, sealers and manual resources, and each virtual autonomous cell includes a combination of at least two of the resources.

3. (Previously presented) The method of claim 1 wherein the step of

assigning print jobs comprises, for each given print job, determining what tasks need to be performed to complete the given print job and assigning the given print job to one of the virtual autonomous cells that contains sufficient representations of resources for performing the tasks that need to be completed to fully process the given print job.

4. (Previously presented) The method of claim 3 wherein the step of assigning print jobs comprises, for each given print job, determining which of the virtual autonomous cells has sufficient available capacity to completely process the given print job.

5. (Previously presented) The method of claim 1 wherein at least one of the virtual autonomous cells includes representations of more than one machine for performing a same operation.

6. (Previously presented) The method of claim 1 further comprising the steps of:

determining classes of print jobs; and
assigning each print job to one of the classes.

7. (Previously presented) The method of claim 6 wherein the determination of the class of print job is done based on collecting and analyzing print job data and on the tasks required to process the print job.

8. (Previously presented) The method of claim 6 wherein the step of assigning each print job to a selected one of the virtual autonomous cells for processing is based in part on the classes to which the print jobs are assigned.

9. (Previously presented) The method of claim 1 wherein a selected one of the virtual autonomous cells is assigned multiple print jobs for concurrently processing the multiple print jobs.

10. (Currently amended) A method for optimizing the performance of a printshop, the method comprising the steps of:

providing a printshop that is partitioned into existing virtual autonomous cells, each virtual autonomous cell representing an autonomous cell, containing representations of sufficient resources to complete a print job;

receiving a print job for processing at the printshop;

determining if the print job fits at least one of the existing virtual autonomous cells, the fitted virtual autonomous cell including a combination of resources capable of completing the print job;

based on the determining, generating a new mapping of the virtual autonomous cells such that the print job fits at least one of the virtual autonomous cells of the new mapping;

sending the print job to a selected one of the virtual autonomous cells having the combination of resources capable of completing the print job, the selected one of the virtual autonomous cells being selected from one of the existing virtual autonomous cells or one of the virtual autonomous cells of the new mapping; and

at the selected virtual autonomous cell, dividing the print job into lots and concurrently processing the lots using the resources of the selected virtual autonomous cell.

11. (Previously presented) The method of claim 10 wherein each virtual autonomous cell contains multiple resources for completing a print job.

12. (Previously presented) The method of claim 10 wherein the printshop has more than two virtual autonomous cells.

13. (Original) The method of claim 10 wherein the lots are roughly equal sized.

14. (Original) The method of claim 10 wherein the dividing step is performed automatically by a machine.

15. (Original) The method of claim 14 wherein the machine is a computer system.

16. (Currently amended) A method of partitioning a printshop, comprising the

steps of:

identifying products produced by the printshop;

identifying operations required for producing each of the identified products;

determining printshop resources that are required for completing the identified operations;

determining a number of printshop resources required for operations to produce the products based on customer demand for products; ~~and~~

partitioning printshop resources into virtual autonomous cells based on the determined number of printshop resources required for operations to produce products based on customer demand for products, wherein each virtual autonomous cell represents autonomous cells, independently capable of producing at least one of the identified products, and wherein the virtual autonomous cells each contain a combination of printshop resources, at least two of the resources of the combination of printshop resources being necessary to produce at least one of the products; and

generating a new mapping of the virtual autonomous cells such that a new product fits at least one of the virtual autonomous cells of the new mapping based on the determined number of printshop resources required for the new product.

17. (Previously presented) The method of claim 16 wherein throughput of each virtual autonomous cell is determined as a function of the printshop resources allocated to the autonomous cell, and wherein representations of the printshop resources are allocated to each virtual autonomous cell based on customer demand.

18. (Previously presented) The method of claim 16 wherein the step of identifying products comprises identifying classes of print jobs produced by the printshop, wherein each class includes a sequence of operations that is performed to process the print jobs of the class that differs from the sequence of operations performed to process each of the other classes.

19. (Original) The method of claim 16 wherein customer demand is estimated based on empirical data.

20. (Original) The method of claim 16 further comprising the step of assigning

a print job to a selected one of the autonomous cells for completion by the selected autonomous cell.

21. (Previously presented) The method of claim 20 further comprising the step of dividing the print job into smaller sized lots and concurrently processing the smaller sized lots using the resources of the selected virtual autonomous cell.

22. (Original) The method of claim 20 wherein the assigning step is performed by a computer system.

23. (Previously presented) The method of claim 1, further including constructing scheduling algorithms for the printshop based on the virtual autonomous cells.

24. (Previously presented) The method of claim 1, further including altering a physical layout of the printshop in accordance with the virtual autonomous cells.

25. (Previously presented) The method of claim 16, further including constructing scheduling algorithms for the printshop based on the virtual autonomous cells.

26. (Previously presented) The method of claim 16, further including altering a physical layout of the printshop in accordance with the virtual autonomous cells.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Patrick Roche on 3/14/06.

Please amend status identifier of claim 2 from "Previously Presented" to "Currently Amended".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham

Primary Examiner

Gabriel Garcia

Gabriel Garcia